

AMENDMENTS TO THE CLAIMS:

1-14 CANCELLED

15. (currently amended) An electromechanical resonating device comprising:
a first support member; and
a selectively doped vibrating member that is capable of resonating in a vibrational mode that has a first node and is attached to the first support at a position of the first node, the selectively doped vibrating member including;
a first doped conducting region extending from the first support; and
an insulating region;
the selectively doped vibrating member comprising a body of single crystal semiconductor material;
the support comprising a top layer of single crystal semiconductor material that is contiguous with the body of single crystal semiconductor material; and
the support being contiguous with a portion of single crystal silicon that overlies a lower layer of silicon di-oxide.

16. CANCEL

17. CANCEL

18. CANCEL

19. (original) The electromechanical resonating device according to claim 15 wherein:
the selectively doped vibrating member comprises a beam shaped member having a first end, and a second end, a first longitudinal side extending between the first end and the second end, and a second longitudinal side extending between the first end and the second end.

20. (original) The electromechanical resonating device according to claim 19 wherein:
the selectively doped vibrating member is capable of resonating in a vibrational mode that includes the first node and a second node; and
the resonating device further comprises a second support attached at the second node.
21. (original) The electromechanical resonating device according to claim 20 wherein:
the first doped conducting region extends from the first support to the second support.
22. (original) The electromechanical resonating device according to claim 20 wherein:
the first support is attached to the first longitudinal side;
the second support is attached to the second longitudinal side; and
the device further comprises:
a third support attached to the second longitudinal side at the first node; and
a fourth support attached to the first longitudinal side at the second node.
23. (original) The electromechanical resonating device according to claim 19 wherein:
the first node is located at approximately a center of the beam shaped member;
the first support is attached at approximately a center of the first longitudinal side of the beam shaped member; and
the first doped conducting region extends from the first support towards the first end of the beam shaped member; and
the resonating device further comprises:
a second support attached at approximately the center of the second longitudinal side of the beam shaped member; and
a second doped conducting region extending from the second support toward the second end of the beam shaped member; and
an insulating region between the first doped conducting region and the second doped conducting region.
24. (original) The electromechanical resonating device according to claim 23 wherein:

the selectively doped vibrating member is capable of resonating in a vibrational mode that includes the first node, a second node, and a third node; and the resonating device further comprises;

a third support attached to the beam at the second node;
a fourth support attached to the beam at the third node.

25. (currently amended) The electromechanical resonating device according to claim 23 24 wherein:

the first doped conducting region extends from the first support to the third support; and

the second doped conducting region extends from the second support to the fourth support.

26. (currently amended) An electromechanical resonating system comprising:

a vibrating member that is capable of resonating in a vibrational mode that includes a first anti-node characterized by a first relative phase and a second anti-node characterized by a second relative phase that is opposite to the first phase; and

a first electrode positioned in a vicinity of the first anti-node; and

a second electrode positioned in a vicinity of the second anti-node; and

an electric circuit including:

a differential amplifier having:

a first differential input coupled to the first electrode; and

a second differential input coupled to the second electrode.

27. CANCEL

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30. (original) The electromechanical resonating system according to claim 26 wherein:

the first electrode comprises:

a first selectively doped region of the vibrating member.

31. (original) The electromechanical resonating system according to claim 30 wherein:

the second electrode comprises:

a second selectively doped region of the vibrating member.

32. (original) The electromechanical resonating system according to claim 26 wherein:

the vibrating member comprises:

a beam capable of vibrating in a flexural mode having at least two anti-nodes, and one or more nodes.

33. (currently amended) The electromechanical resonating system according to claim 26 32

wherein:

a longitudinal coordinate of a center of gravity of the beam corresponds to a position of one of the one or more nodes.

34. CANCEL

35. (currently amended) The electromechanical resonating system according to claim 26 32

further comprising:

one or more supports coupled to the beam at each of the one or more nodes.

36. CANCEL

37. (currently amended) The electromechanical resonating system according to claim 26

wherein: An electromechanical resonating system comprising:

a vibrating member that is capable of resonating in a vibrational mode that includes a first anti-node characterized by a first relative phase and a second anti-node characterized by a second relative phase that is opposite to the first phase;

a first electrode positioned in a vicinity of the first anti-node;

a second electrode positioned in a vicinity of the second anti-node; and

the vibrating member comprises a beam capable of vibrating in a flexural mode having an even number of anti-nodes including a first plurality of anti-nodes characterized by the first phase, and a second plurality of anti-nodes characterized by the second phase.

38. CANCEL

39. (currently amended) The electromechanical resonating system according to claim 38 37 further comprising:

a second set of electrodes each positioned in the vicinity of one of a set of the second plurality of anti-nodes; and

a second input of the electric circuit coupled to the second set of electrodes.

40-56. CANCELLED

57. (new) An electromechanical resonating device comprising:

a first support member;

a selectively doped vibrating member that is capable of resonating in a vibrational mode that has a first node and is attached to the first support at a position of the first node, the selectively doped vibrating member including;

a beam shaped member having a first end, and a second end, a first longitudinal side extending between the first end and the second end, and a second longitudinal side extending between the first end and the second end;

a first doped conducting region extending from the first support; and
an insulating region; and

wherein the first node is located at approximately a center of the beam shaped member;

the first support is attached at approximately a center of the first longitudinal side of the beam shaped member; and